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     (FILE 'USPAT' ENTERED AT 13:07:26 ON 08 NOV 1998)
L1          1185 S UMBILICAL CORD
L2           128 S L1 AND LYOPHILIZE?
L3             0 S L2 AND STENT
L4            36 S L2 AND IMPLANT?
L5             3 S L4 AND (VEIN AND ARTERY)
L6             1 S L5 AND (BRANCHED OR BRANCHING)
L7             8 S L1 AND STENT
L8             2 S L7 AND VACUUM
L9             2 S STENT (P) UMBILICAL CORD
L10            2 S L9 AND (PRESERV?)
```

=> d cit ab l9 1-2

1. 5,131,908, Jul. 21, 1992, Tubular prosthesis for vascular reconstructive surgery and process for preparing same; Herbert Dardik, et al., 600/36; 623/1, 66 [IMAGE AVAILABLE]

US PAT NO: 5,131,908 [IMAGE AVAILABLE] L9: 1 of 2

ABSTRACT:
Arteries and veins of umbilical cords are treated by processes described, fitted with a biodegradable mesh support and used as tubular prosthesis for vascular reconstructive surgery.

2. 4,990,131, Feb. 5, 1991, Tubular prostheses for vascular reconstructive surgery and process for preparing same; Herbert Dardik, et al., 600/36; 8/94.11; 623/1 [IMAGE AVAILABLE]

US PAT NO: 4,990,131 [IMAGE AVAILABLE] L9: 2 of 2

ABSTRACT:
Arteries and veins of umbilical cords are treated by processes described, fitted with a biodegradable mesh support and used as tubular prosthesis for vascular reconstructive surgery.

=> s l1 and stent

          1547 STENT
L7           8 L1 AND STENT

=> d l7 1-8

1. 5,720,777, Feb. 24, 1998, Biological material pre-fixation treatment; Norman Jaffe, et al., 623/2 [IMAGE AVAILABLE]

2. 5,628,785, May 13, 1997, Bioelastomeric stent; Robert S. Schwartz, et al., 623/1; 600/36; 604/104; 606/194; 623/11, 12 [IMAGE AVAILABLE]

3. 5,595,571, Jan. 21, 1997, Biological material pre-fixation treatment; Norman Jaffe, et al., 8/94.11; 623/1, 2, 11, 12, 13, 14 [IMAGE AVAILABLE]

4. 5,591,224, Jan. 7, 1997, Bioelastomeric stent; Robert S. Schwartz, et al., 623/1; 606/195; 623/12 [IMAGE AVAILABLE]

5. 5,585,361, Dec. 17, 1996, Methods for the inhibition of platelet adherence and aggregation; James W. Burns, et al., 514/25, 822 [IMAGE AVAILABLE]

6. 5,131,908, Jul. 21, 1992, Tubular prosthesis for vascular reconstructive surgery and process for preparing same; Herbert Dardik, et al., 600/36; 623/1, 66 [IMAGE AVAILABLE]

7. 4,990,131, Feb. 5, 1991, Tubular prostheses for vascular reconstructive surgery and process for preparing same; Herbert Dardik, et al., 600/36; 8/94.11; 623/1 [IMAGE AVAILABLE]

8. 4,867,147, Sep. 19, 1989, Oral injury prevention appliance for comatose patients and the like; E. Wayne Davis, 128/859, 861 [IMAGE AVAILABLE]

=> s l7 and vacuum

        304573 VACUUM
L8           2 L7 AND VACUUM

=> d l8 1-2

1. 5,628,785, May 13, 1997, Bioelastomeric stent; Robert S. Schwartz, et al., 623/1; 600/36; 604/104; 606/194; 623/11, 12 [IMAGE AVAILABLE]

2. 5,591,224, Jan. 7, 1997, Bioelastomeric stent; Robert S. Schwartz, et al., 623/1; 606/195; 623/12 [IMAGE AVAILABLE]

=> s l1 and stent

1547 STENT
L7 8 L1 AND STENT

=> d l7 1-8

1. 5,720,777, Feb. 24, 1998, Biological material pre-fixation treatment; Norman Jaffe, et al., 623/2 [IMAGE AVAILABLE]

2. 5,628,785, May 13, 1997, Bioelastomeric stent; Robert S. Schwartz, et al., 623/1; 600/36; 604/104; 606/194; 623/11, 12 [IMAGE AVAILABLE]

3. 5,595,571, Jan. 21, 1997, Biological material pre-fixation treatment; Norman Jaffe, et al., 8/94.11; 623/1, 2, 11, 12, 13, 14 [IMAGE AVAILABLE]

4. 5,591,224, Jan. 7, 1997, Bioelastomeric stent; Robert S. Schwartz, et al., 623/1; 606/195; 623/12 [IMAGE AVAILABLE]

5. 5,585,361, Dec. 17, 1996, Methods for the inhibition of platelet adherence and aggregation; James W. Burns, et al., 514/25, 822 [IMAGE AVAILABLE]

6. 5,131,908, Jul. 21, 1992, Tubular prosthesis for vascular reconstructive surgery and process for preparing same; Herbert Dardik, et al., 600/36; 623/1, 66 [IMAGE AVAILABLE]

7. 4,990,131, Feb. 5, 1991, Tubular prostheses for vascular reconstructive surgery and process for preparing same; Herbert Dardik, et al., 600/36; 8/94.11; 623/1 [IMAGE AVAILABLE]

8. 4,867,147, Sep. 19, 1989, Oral injury prevention appliance for comatose patients and the like; E. Wayne Davis, 128/859, 861 [IMAGE AVAILABLE]

=> d l5 1-3

1. 5,624,896, Apr. 29, 1997, Clearing agents useful in pretargeting methods; Donald B. Axworthy, et al., 514/8; 530/350, 362, 363, 386, 402, 410; 548/303.7 [IMAGE AVAILABLE]

2. 5,541,287, Jul. 30, 1996, Pretargeting methods and compounds; Eric K. Yau, et al., 530/317, 323, 330, 331, 332, 345 [IMAGE AVAILABLE]

3. 4,801,299, Jan. 31, 1989, Body implants of extracellular matrix and means and methods of making and using such implants; Klaus Brendel, et al., 623/1; 8/94.11, 94.15, 94.17, 94.18; 128/DIG.8; 435/1.1; 623/7, 16, 66 [IMAGE AVAILABLE]

=> d 1-3 kwic

US PAT NO: 5,624,896 [IMAGE AVAILABLE] L5: 1 of 3

DRAWING DESC:

DRWD(159)

The . . . prior to use. Such clearing agent is preferably vialed in a sterile, pyrogen-free environment. Alternatively, the clearing agent may be lyophilized prior to packaging. In this circumstance, instructions for preparing the lyophilized clearing agent for administration to a recipient may be included on the label.

DRAWING DESC:

DRWD(174)

The . . . targeted in the desirable manner and are, therefore, useful in the imaging/therapy of conditions such as pulmonary embolism and deep vein thrombosis.

DRAWING DESC:

DRWD(239)

Another . . . In these embodiments of the present invention, the active agent-ligand (e.g., radiolabeled biotin) or -anti-ligand is administered intraarterially using an artery supplying tissue that contains the target. In the radiolabeled biotin example, the high extraction efficiency provided by avidin-biotin interaction facilitates. . .

DRAWING DESC:

DRWD(241)

Intraarterial . . . applications for intraarterial delivery aspects of the pretargeting methods of the present invention include treatment of liver tumors through hepatic artery administration, brain primary tumors and metastases through carotid artery administration, lung carcinomas through bronchial artery administration and kidney carcinomas through renal artery administration. Intraarterial administration pretargeting can be conducted using chemotherapeutic drug, toxin and anti-tumor active agents as discussed below. High potency. . .

DRAWING DESC:

DRWD(258)

. . .

| | | |
|---|---|---|
| 1/3 | 500 | |
| Lymphoid Follicle-Central | | |
| | 0/3 | 0 |
| Lymphoid Follicle-Peripheral | | |
| | 0/3 | 0 |
| Mucus Gland | 1/1 | 300 |
| Striated Muscle | 0/3 | 0 |
| Umbilical cord | | |
| Epithelium | 0/3 | 0 |
| Urinary Bladder | | |
| Mucosal Epithelium | | |

| | |
|---|---|
| | 3/3 |
| Serosa | 0/1 |
| Smooth Muscle | 0/3 |
| Uterus | |
| Endometrial Epithelium. . . | |

DETDESC:

DETD(38)

A . . . mCi/mg) was examined in a three-step pretargeting protocol in an animal model. More specifically, 18-22 g female nude mice were implanted subcutaneously with LS-180 human colon tumor xenografts, yielding 100-200 mg tumors within 10 days of implantation.

DETDESC:

DETD(103)

Clearance . . . catheter-like device, consisting of thin loops of synthetic polymer or protein fibers derivitized with biotin, is inserted into a major artery (e.g., femoral artery) to capture NR-LU-13-avidin. Since the total blood volume passes through a major artery every 70 seconds, the in situ clearing device is effective to reduce circulating NR-LU-13-avidin within a short period of time.. . .

DETDESC:

DETD(152)

PIP-Biocytin, . . . fate thereof in vivo. The following data are based on experimentation with tumored nude mice (100 mg LS-180 tumor xenografts implanted subcutaneously 7 days prior to study) that received, at time 0, 200 .mu.g of I-125 labeled NR-LU-10-Streptavidin conjugate (950 pmol),. . .

US PAT NO: 5,541,287 [IMAGE AVAILABLE] L5: 2 of 3

DETDESC:

DETD(161)

The . . . be transported prior to use. Such conjugate is preferably vialed in a sterile, pyrogen-free environment. Alternatively, the conjugate may be lyophilized prior to packaging. In this circumstance, instructions for preparing the lyophilized conjugate for administration to a recipient may be included on the label.

DETDESC:

DETD(176)

The . . . targeted in the desirable manner and are, therefore, useful in the imaging/therapy of conditions such as pulmonary embolism and deep vein thrombosis.

DETDESC:

DETD(208)

Another . . . In these embodiments of the present invention, the active agent-ligand (e.g., radiolabeled biotin) or -anti-ligand is administered intraarterially using an artery supplying tissue that contains the target. In the radiolabeled biotin example, the high extraction efficiency provided by avidin-biotin interaction facilitates. . .

DETDESC:

DETD(210)

Intraarterial . . . applications for intraarterial delivery aspects of the pretargeting methods of the present invention include treatment of liver tumors through hepatic artery administration, brain primary tumors and metastases through carotid artery administration, lung carcinomas through bronchial artery administration and kidney carcinomas through renal artery administration. Intraarterial administration pretargeting can be conducted using chemotherapeutic drug, toxin and anti-tumor active agents as discussed below. High potency. . .

DETDESC:

DETD(227)

. . .

| | |
|---|---|
| 1/3 | 500 |
| Lymphoid Follicle-Central | |

| | | |
|---|---|---|
| | 0/3 | 0 |
| Lymphoid Follicle-Peripher | | |
| | 0/3 | 0 |
| Mucus Gland | 1/1 | 300 |
| Striated Muscle | 0/3 | 0 |
| Umbilical cord | | |
| Epithelium | 0/3 | 0 |
| Urinary Bladder | | |
| Mucosal Epithelium | | |
| | 3/3 | 433 |
| Serosa | 0/1 | 0 |
| Smooth Muscle | 0/3 | 0 |
| Uterus | | |
| Endometrial Epithelium. . . | | |

DETDESC:

DETD(266)

A . . . mCi/mg) was examined in a three-step pretargeting protocol in an animal model. More specifically, 18-22 g female nude mice were implanted subcutaneously with LS-180 human colon tumor xenografts, yielding 100-200 mg tumors within 10 days of implantation.

DETDESC:

DETD(331)

Clearance . . . catheter-like device, consisting of thin loops of synthetic polymer or protein fibers derivitized with biotin, is inserted into a major artery (e.g., femoral artery) to capture NR-LU-13-avidin. Since the total blood volume passes through a major artery every 70 seconds, the in situ clearing device is effective to reduce circulating NR-LU-13-avidin within a short period of time.. . .

DETDESC:

DETD(386)

PIP-Biocytin, . . . fate thereof in vivo. The following data are based on experimentation with tumored nude mice (100 mg LS-180 tumor xenografts implanted subcutaneously 7 days prior to study) that received, at time 0, 200 .mu.g of I-125 labeled NR-LU-10-Streptavidin conjugate (950 pmol),. . .

US PAT NO: 4,801,299 [IMAGE AVAILABLE] L5: 3 of 3
TITLE: Body implants of extracellular matrix and means and methods of making and using such implants

ABSTRACT:
A sterile body implant is derived from a body structure having as its major protein component collagens in the form of extracellular matrix. The body structure is treated to remove cellular membranes, nucleic acids, lipids and cytoplasmic components. Such structures are implanted internally in the body or externally on the body in a variety of medical uses.

SUMMARY:

BSUM(2)

A large variety of body implants are known for medical uses such as substitute vascular prostheses, skin dressings and coverings, and for other purposes. The implant materials can be synthetic or body tissues from the same species or other species as the species to be implanted. When body tissues and structures are to be implanted, they may be used fresh from the donor but in many cases, it is preferred to have some means of preserving the implant tissue for later use.

SUMMARY:

BSUM(3)

Umbilical . . . storage in buffer and fixing with glutaraldehyde. Bovine carotids have been treated with ficin to form collagenous materials for later implantation. Others have extracted lipids from cross-linked body materials to be implanted. U.S. Pat. No. 4,323,358 does disclose the use of a sodium dodecyl sulfate treatment of a body implant material which has first been treated with glutaraldehyde. The treatment is carried out only after cross-linking and inhibits mineralization on implantation. None of these known procedures has resulted in a totally acceptable and reproduceable vascular graft suitable for acceptance by all. . .

SUMMARY:

BSUM(5)

The prior art has not recognized the substantial advantages obtainable by use of body implants which have been treated to form them into cell-free extracellular matrix high in collagens and suitable to provide body repair. . .

SUMMARY:

BSUM(7)

It is an object of this invention to provide sterile body implants comprising body derived whole structures having as a major component collagens in the form of extracellular matrix from which has. . .

SUMMARY:

BSUM(8)

It is an object of this invention to provide novel body implants from living bodies which can replace and repair body structures and which is non-antigenic to the body.

SUMMARY:

BSUM(11)

The method of this invention broadly comprises forming a body implant from a body tissue which has been treated with a denaturing detergent to obtain the structure in extracellular matrix form.

SUMMARY:

BSUM(12)

In . . . form extracellular matrix having as its major component collagens and making the body tissue suitable for use as a body implant, a first non-denaturing detergent is used to remove cytoplasmic cell membranes but not nuclear membranes while preventing degradation of extracellular. . . nuclear membranes after which both detergents are removed while maintaining the tissue in sterile form for use as a body implant. Preferably the first detergent is used with a protease inhibitor and may or may not have a DNase added. Thus,. . .

SUMMARY:

BSUM(15)

In . . . subsequent use. The whole structures such as carotid arteries that have been treated in accordance with this invention can e lyophilized for subsequent implantation or maintained sterile in a liquid base under conventional conditions. In some cases, glutaraldehyde or other cross-linking treatments can be used as is known for tissue structures. Such cross-linking may be desired in certain implants.

SUMMARY:

BSUM(16)

It is a feature of this invention that the body implants can retain the biologically relevant histoarchitecture of the tissue which they are replacing or repairing. The body implants retain physical properties such as strength, resiliency, density, insolubility and permeability. The primary structure of the extracellular matrix in a. . . conduits for recellularization when reimplanted in a body and the recellularization occurs in a biologically relevant fashion to obtain an implant which retains many of the natural physical properties of graft or other tissues. When used in grafts, the implants do not show strong thrombogenic interactions with flowing blood except at extremely small diameters (less than 100 micrometers).

SUMMARY:

BSUM(17)

The body implants of this invention are of cell-free extracellular matrix which contains a significant portion of the original tissue mass retaining physical. . .

SUMMARY:

BSUM(19)

Natural . . . man such as pig, cow, dog, norse and the like can be used as starting materials to form the body implants of the present invention. Minimized antigenic properties can often be obtained when the same species is used for the starting material as to be used for the

implanting although as a practical matter, when dealing with implants for man, the spec[redacted] is often other mammals for derivation of the starting material. [redacted] starting tissues are preferably the sa[redacted] as the tissues where the materials are going to be implanted. For example, vascular valves can be replaced with vascular valve materials from another body which had been treated according to. . . . can be used as the starting material such as pericardium and dura matter which can be used as a skin implant to dress burn wounds and the like.

SUMMARY:

BSUM(20)

In all cases, the body implants are formed from body tissues obtained upon autopsy or sacrifice without prior fixation with preservatives, tanning agents or deleterious enzyme. . .

SUMMARY:

BSUM(21)

Basically . . . the like. After treatment of the tissue with detergents, additional steps are taken to remove detergent residues, obtain a sterilized implant which can be maintained sterile and in some cases adding improved physical properties to the implant such as cross-linking for increased strength in certain tissue types.

SUMMARY:

BSUM(22)

The body implants fall into four general types which includes vascular prostheses such as carotid artery replacement, and general vein and artery replacement in the body, heart valves and patches, burn dressings and coverings, and tooth and bone implants. Preferred body implants include vascular prostheses from explanted human arteries and human umbilical cords for implantation in humans; arteries and veins from primates, dogs and other animals for implantation in humans; venous prostheses complete with valves from explanted human veins for implantation in humans or from animal veins for implantation in humans. Heart valves can be taken from human autopsy or donor tissue for implantation in humans or the source can be slaughterhouse animal tissue for implantation in humans. Pericardium, pericardial sac, dura mater, omentum, mesentery and conjunctiva from human autopsy donor tissue, or from slaughterhouse animals. . . surgical reconstruction. Bone pieces, cartilage and ligaments from human autopsy or animal tissue can be used in surgical reconstruction. Tooth implants can be obtained and treated and reimplanted in human teeth sockets to provide prosthetic devices. Skin or gut of animal. . . arteries, veins, umbilical cords, skin, bone, teeth, cartilage, intestinal wall, ligaments, and the like are preferred for use. Other body implants can be formed in accordance with the present invention. The original body tissues and structures used are such that they. . .

SUMMARY:

BSUM(32)

In . . . body tissue being treated to enable it to act in the form of extracellular matrix for use as a body implant. In other cases, only the first detergent step need be carried out although it is much preferred to use a. . .

SUMMARY:

BSUM(42)

Once the body tissue structures of this invention have been treated with detergents as described, they can be implanted in the body by conventional techniques. Thus, vascular grafts can be made to replace carotid and other arteries and veins. . .

DETDESC:

DETD(1)

The . . . better understood from the following descriptions of theoretical and actual examples of methods of producing and using extracellular matrix body implants of the present invention.

DETDESC:

DETD(3)

Human . . . then several 24 hour exposures to 70% ethanol in order to be finally stored in 70% ethanol until preparation for implantation.

Storage in 70% ethanol is possible for extended periods of time. Before implantation, the vascular graft is washed in 0.9% sterile saline with several exchanges and then soaked in a small amount of heparinized saline. Implantation proceeds via standard procedures in vascular surgery. Instead of exposure to four days of Triton X- 100, one cay Triton. . .

DETDESC:

DETD(4)

Differences in these treatments are not obvious as measured by histology but might be important in recellularization and turnover of the implanted cellular, vascular, extracellular matrix.

DETDESC:

DETD(6)

Human . . . Damaged or otherwise unsuitable cords are discarded. Those cords deemed suitable for further treatment are cannulated unilaterally at the umbilical vein observing sterile procedures and are then attached to an apparatus which permits perfusion of the tissue in both recirculatory modes. . . . hours. Fixation is followed by washing with filtered reverse osmosis water and capping, a procedure in which the isolated human umbilical cord extracellular matrix is exposed to solutions of aminoacids or proteins in water with the result of binding these to the. . . materials are returned to a wash bath and then into the final storage solution. Upon preparation for surgery the human umbilical cord extracellular matrix is removed from the storage solution and washed and flushed with sterile saline and then heparinized sterile saline.. . .

DETDESC:

DETD(16)

If . . . Excess glutaraldehyde is washed off with sterile RO water using scrupulously sterile conditions from then on. The strips are then lyophilized in a stretched out flat position and packed into ethylenoxide sterilized plastic bags. Alternatively, the strips of pig skin extracellular matrix may also be lyophilized before the glutaraldehyde step and lyophilized at this stage, a treatment which is followed by ethylene oxide sterilization (<40.degree. C.) and packaging into sterile plastic bags.

DETDESC:

DETD(17)

The lyophilized pig skin extracellular matrix when kept dry, dark and cool, has an indefinite shelf life. Reconstruction of the material is. . .

DETDESC:

DETD(23)

Adult greyhounds were used as donors for native carotid artery. The animals were premedicated with Xylazine (1.0 mg/lb) and anesthetized with intravenous sodium pentobarbitol (11.0 mg/lb). The animals were intubated. . .

DETDESC:

DETD(28)

A . . . the neck to allow bilateral dissection of right and left common carotid arteries from the thoracic region to the thyroid artery bifurcation. The carotids were excised and flushed thoroughly with a heparinized normal saline solution.

DETDESC:

DETD(31)

Surgical Implantation

DETDESC:

DETD(32)

Adult . . . probes and flow meter SP 2204. Dissection of the RCC was expanded to roughly 15-20 cm proximal to the thyroid artery bifurcation. Temporary aneurysm clips were applied proximally and distally to the area in which the graft was to be positioned. The RCC was then cut cleanly with a sharp iris scissor between the clips and the

artery was flushed with heparinized normal saline.

DETDESC:

DETD(33)

Using . . . each anastomosis. Back flow-reperfusion techniques were applied for removal of air and the final reperfusion of the host and graft artery. Following topical application of 2% lidocaine HCl another blood flow measurement was recorded ten minutes post graft reperfusion. Graft length. . .

DETDESC:

DETD(40)

The intact graft with host artery ends is laid out on gauze soaked with Karnovsky's fixative. Starting at the proximal end, the specimen is transsected with. . .

DETDESC:

DETD(42)

Example 9 is illustrative of the success of the detergent treated vascular grafts of this invention when used as body implants. However, it should be noted that not all dogs treated survived. When the tests are repeated, in some cases and. . . mechanical problems associated with the suturing procedures which should be correctable by the use of microsurgical techniques. When grafts are implanted for carotid arteries, microsurgical techniques are preferred.

DETDESC:

DETD(45)

Partially . . . ethanol until required for surgical use. Grafts prepared in accordance with this procedure are found to be useful as biological implants in dogs as carotid artery replacements.

DETDESC:

DETD(46)

While specific examples of the present invention have been described, many variations are possible. It is important that the body implants of acellular matrix be detergent treated prior to implantation in a body so as to remove antigenic components yet still provide a preformed material which can act as a. . .

DETDESC:

DETD(47)

Vascular . . . millimeters in lumen. Such tubular structures conform to the histoarchitecture of the tubes which they replace when used as body implants. They allow regrowth of cells and provide high patencies in a large variety of circumstance. Similarly other body implants when formed as acellular matrix prior to implantation into the body can be highly useful to repair portions of the body including all body tubes, heart linings and. . .

DETDESC:

DETD(48)

Standard implanting surgical procedures can be used to insert the matrix structures in mammalian bodies.

CLAIMS:

CLMS(1)

What is claimed is:

1. A sterile body implant comprising a body derived structure having as its major component collagens and elastin in the form of extracellular matrix from. . .

CLAIMS:

CLMS(2)

2. A body implant in accordance with claim 1 wherein said implant is sized and dimensioned to be compatible with the histoarchitecture of a body portion to which the implant is to be attached.

CLAIMS:

CLMS(3)

3. A sterile body implant in accordance with claim 1 wherein said implant is treated shortly after said body structure is removed from the body and prior to substantial chemical cross-linking or change. . .

CLAIMS:

CLMS(4)

4. . . . form extracellular matrix having as one major component collagens and making said body tissue suitable for use as a body implant, said method comprising extracting said tissue with a first and second detergent while maintaining said tissue in a suitable size and form for implantation in the body,
said second detergent being a strong anionic detergent and removing said detergents while maintaining said tissue in sterile form for use as a body implant,
said anionic detergent being selected from the group consisting of a water soluble salt of a sulfated higher aliphatic alcohol, sulfonated. . .

CLAIMS:

CLMS(6)

6. . . . form extracellular matrix having as one major component collagens and making said body tissue suitable for use as a body implant, said method comprising extracting said tissue with a first an second detergent while maintaining said tissue in a suitable size and form for implantation in the body,
said second detergent being a strong anionic detergent and removing said detergents while maintaining said tissue in sterile form for use as a body implant,
said first detergent being admixed with a protease inhibitor.

CLAIMS:

CLMS(7)

7. . . . form extracellular matrix having as one major component collagens and making said body tissue suitable for use as a body implant, said method comprising extracting said tissue with a first and second detergent while maintaining said tissue in a suitable size and form for implantation in the body,
said second detergent being a strong anionic detergent and removing said detergents while maintaining said tissue in sterile form for use as a body implant,
said first detergent being admixed with a DNase.

CLAIMS:

CLMS(8)

8. . . . form extracellular matrix having as one major component collagens and making said body tissue suitable for use as a body implant, said method comprising extracting said tissue with a first and second detergent while maintaining said tissue in a suitable size and form for implantation in the body,
said second detergent being a strong anionic detergent and removing said detergents while maintaining said tissue in sterile form for use as body implant,
said body implant being a bone implant.

CLAIMS:

CLMS(9)

9. . . . form extracellular matrix having as one major component collagens and making said body tissue suitable for use as a body implant, said method comprising extracting said tissue with a first and second detergent while maintaining said tissue in a suitable size and form for implantation in the body,
said second detergent being a storing anionic detergent and removing said detergents while maintaining said tissue in sterile form for use as a body implant,
said body implant being a tooth implant.

CLAIMS:

CLMS(10)

10. . . . form extracellular matrix having as one major component collagens and making said body tissue suitable for use as a body

implant, said method comprising extracting said tissue with a first [redacted] and second detergent while maintaining said tissue in a suitable size and form for implantation in the body,
said second detergent being a strong anionic detergent and removing said detergents while maintaining said tissue in sterile form for use as a body implant,
said body implant being a skin implant.

CLAIMS:

CLMS(11)

11. A method of implanting in a living body a whole structure for repairing the body, said structure being in the form of extracellular matrix. . . major component collagens with said removal being carried out by the use of at least one detergent, said method comprising implanting said structure in a living body,
said whole structure being a tooth.

CLAIMS:

CLMS(12)

12. A method of implanting in a living body a whole structure for repairing the body, said structure being in the form of extracellular matrix. . . major components collagens with said removal being carried out by the use of at least one detergent, said method comprising implanting said structure in a living body,
said whole structure being an area of the skin.

CLAIMS:

CLMS(13)

13. In a method of forming a body implant from a body tissue the improvement comprising treating said body tissue prior to cross-linking or unwanted deterioration of said tissue with a first non-denaturing detergent and a second denaturing detergent and forming said body implant therefrom suitable for use in implanting in a living body,
said detergents being used in sequence and a protease inhibitor being used along with said first. . .

CLAIMS:

CLMS(15)

15. In a method of forming a body implant from a body tissue the improvement comprising treating said body tissue prior to cross-linking or unwanted deterioration of said tissue with a first non-denaturing detergent and a second denaturing detergent and forming said body implant therefrom suitable for use in implanting in a living body,
said second detergent being a strongly anionic detergent which is selected from the group consisting of. . .

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(FILE 'USPAT' ENTERED AT 13:07:26 ON 08 NOV 1998)
L1 1185 S UMBILICAL CORD
L2 128 S L1 AND LYOPHILIZE?
L3 0 S L2 AND STENT
L4 36 S L2 AND IMPLANT?
L5 3 S L4 AND (VEIN AND ARTERY)